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DOUBLE SHIFT INSTRUCTION FOR MICRO ENGINE USED IN

MULTITHREADED PARALLEL PROCESSOR ARCHITECTURE

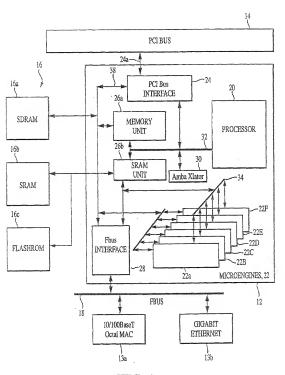


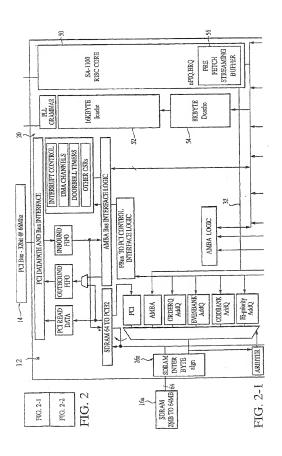
FIG. 1

## REPLACEMENT SHEET

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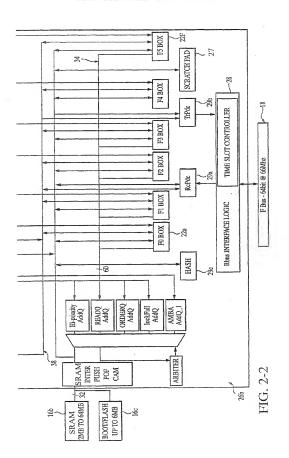
REPLACEMENT SHEET

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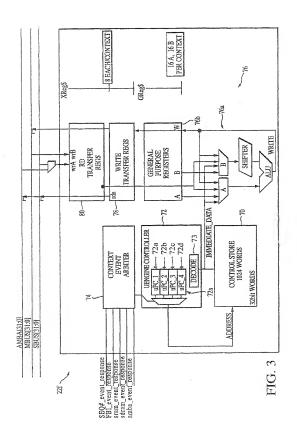


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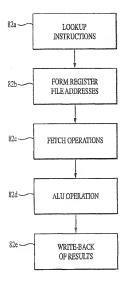


FIG. 4

## REPLACEMENT SHEET

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		4 0 7 0	4 D 4 D	1.20   1   18   7   19   19   19   19   19   2   2   3   3   3   3   3   3   3   3	Src 4	- S &	9 5	, 7 3	s S.	Ab 09	108 - I	H <sub>2</sub> H <sub>2</sub>	3 1 8 6	141	el s	A t		A rel source   A source   Sw   A absolute so	19 19 19	20 an 20	31.30.29 28.27 26.22 24.23 22.21 20   18.17   10.15   14.17   10.15   17.17   10.17	82/20 hift re 827 26 dest re	29 28 27 26 W shift re-	ALU/SHIPT   0   0   sw  shift   rel of set co. 23   28   27   26   25   27   26   27   26   27   26   27   27
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0		~	~1	m	4	S	9	7	œ	60	_	21	3	4	2	9	13	38	5	20	7	8 27 26 25 24 23 22	9 28 27 26 25 24 23 22	$31\ 30\ 29\ 28\ 27\ 26\ 25\ 24\ 23\ 22\ 21\ 20\ 19\ 18\ 17\ 16\ 15\ 14\ 13\ 12\ 11\ 109\ \ 8\ \ 7\ \ 6\ \ 5\ \ 4\ \ 3\ \ 2\ \ 1\ \ 0$

Shift Decode: (rs,r0) decode ([31.0] shifts into [63:32] and take [63;32]):

00 = left rotate 01 = right shift (32-ShfAmt = Right Shift Amt)

11= double shift (upper A-op shifts into lower B-op) 10 = left shift

===> "left rotate" of zero gives zero shift (therwise zero amount signifies indirect shift)

## ALU-OP decode:

1100 = A+B(8)	1101 = A+B(16)	1110 = A + B	0011 = A + B + Cin	
1000 = A - B	1001 = B-A	1010 =	1011≈	
0100 = ~A&B (~and)	0101 =XOR	0110 = OR	0111= mul-stuff	
0000 = B	$0001 = \sim B$	0010 = A&B  (and)	0011= A&~B (and~)	